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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/413,644	10/06/1999	NEIL RICHARDS	S1022/8338	2260

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EXAMINER	
PHILPOTT, JUSTIN M	

ART UNIT	PAPER NUMBER
2665	17

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/413,644	RICHARDS ET AL.	
	Examiner	Art Unit	
	Justin M Philpott	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 1, 2003 has been entered.

Response to Amendment

2. In the Amendment filed August 1, 2003, Applicant has amended claim 1 to include the limitation of time intervals being "substantially constant" and has argued that the pending claims 1-18 should be allowable in view of the Amendment.

Response to Arguments

3. Applicant's arguments filed August 1, 2003 have been considered but are moot in view of the new ground(s) of rejection. However, discussion of the arguments nonetheless follows.

Specifically, Applicant argues (pages 5-8) that Byrn fails to teach the limitation of time intervals being "substantially constant" as now recited in the amended claim 1. Applicant argues that in the invention of Byrn different wheel rates and priorities are utilized and the time interval for servicing cells varies as a result. However, while Byrn provides for the potential for different wheel rates (e.g., Byrn uses an example of three wheel rates, see col. 4, lines 42-45) and

priorities (corresponding to QOS parameters for a VC), each wheel rate is a fixed amount (e.g., one slot per cell time, one slot per 10 cell times, etc.). That is, the designated rates are constant. Furthermore, Byrn teaches using different wheel rates for applications needing to support a plurality of VC transmission requirements, wherein a specific wheel rate would correspond to a specific VC requirement (e.g., see col. 4, lines 33-59), and Byrn also teaches different priorities may be implemented for accommodating QOS parameters for a VC (e.g., see col. 4, lines 53-54). However, Byrn further discloses (as also recognized by Applicant in "Remarks") that by implementing different priority levels the system may experience undesirable jitter (e.g., see col. 5, lines 23-27). Thus, for systems not requiring specific QOS parameters for specific VCs, one of ordinary skill in the art would be motivated *not* to include the priority level feature in such a system as implied by Byrn by discussing undesirable resultant jitter. Similarly, for such systems not needing to accommodate such VC transmission requirements, one of ordinary skill in the art would naturally implement the system of Byrn by selecting a single wheel rate in accordance with the overall system performance. Selecting a single wheel rate and a single priority level in the system of Byrn would yield a substantially constant time interval for servicing as recited in the amended claim 1. Thus, while Byrn may disclose a preferred embodiment comprising both plural wheel rates and plural priorities, for applications not needing to support specific different VC transmission requirements one of ordinary skill in the art would be motivated to implement a system of Byrn having a single wheel rate and no priority feature for reasons discussed above, which would result in a fixed time interval and which would clearly encompass the newly recited limitation of "substantially constant" time intervals.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-5 and 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,533,020 to Byrn et al.

Regarding claim 1, Byrn teaches a priority-based ATM cell scheduler for a data transmission apparatus. Particularly, Byrn teaches a scheduler comprising the following: a data stream control memory (e.g., combination of memory 4 and VCA 7, see FIG. 1) for storing (via VCA 7, see col. 4, lines 55-56) a scheduling variable (e.g., VC transmission requirement corresponding to rate r, see col. 4, lines 40-43, and QOS parameters corresponding to priority p, see col. 4, lines 53-54) for each data stream, each scheduling variable (p, r) being indicative of a scheduled transmission timing (Target Transmission Time TTT, see col. 4, lines 53-59) for that data stream; a clock (reference clock, see col. 4, line 22) for maintaining a current timing indication (Current Transmission Time CTT, see col. 4, line 21); a data stream selector (cell scheduling unit CSU 9 in combination with timing wheels, see col. 4, line 33 to col. 5, line 59) for, at time intervals (depending on rates r, see col. 4, lines 33-52), comparing the scheduling variables (p, r) stored in the memory and selecting the scheduling variables (p, r in the form of timing wheel Wp,r) indicative of the earliest scheduled transmission timing (TTT) (see col. 4 regarding CSU 9 wherein Wp,r selection is indicative of TTT) and, if that scheduled transmission timing (TTT) is not earlier than the current timing (CTT), generating an indication of the data stream corresponding to the selected scheduling variable (see col. 6, lines 34-54,

particularly lines 34-37 and 52-54, as well as col. 5, lines 4-28 and particularly lines 24-26 – wherein cells with a TTT<=CTT are serviced while the other cells of lower priority remain queued with pointers serving as indications of the data stream corresponding to the particular Wp,r) and incrementing the selected scheduling variable (i.e., incrementing the wheel Wp,r according to rate r in order to examine the next highest priority queue); and a data transmission unit (e.g., MMU 8) for receiving the indication of the data stream and transmitting an amount of data from the data stream over the data channel (e.g., next cell out).

However, by providing different wheel rates (r) and priorities (p), Byrn may not specifically teach the data stream selector of the preferred embodiment operates at substantially constant time intervals.

However, while Byrn provides for the potential for different wheel rates (e.g., Byrn uses an example of three wheel rates, see col. 4, lines 42-45) and priorities (corresponding to QOS parameters for a VC), each wheel rate is a fixed amount (e.g., one slot per cell time, one slot per 10 cell times, etc.). That is, the designated rates are constant. Furthermore, Byrn teaches using different wheel rates for applications needing to support a plurality of VC transmission requirements, wherein a specific wheel rate would correspond to a specific VC requirement (e.g., see col. 4, lines 33-59), and Byrn also teaches different priorities may be implemented for accommodating QOS parameters for a VC (e.g., see col. 4, lines 53-54). However, Byrn further discloses that by implementing different priority levels the system may experience undesirable jitter (e.g., see col. 5, lines 23-27). Thus, for systems not requiring specific QOS parameters for specific VCs, one of ordinary skill in the art would be motivated *not* to include the priority level feature in such a system as implied by Byrn by discussing undesirable resultant jitter. Similarly,

for such systems not needing to accommodate such VC transmission requirements, one of ordinary skill in the art would naturally implement the system of Byrn by selecting a single wheel rate in accordance with the overall system performance. Thus, while Byrn may disclose a preferred embodiment comprising both plural wheel rates and plural priorities, for applications not needing to support specific different VC transmission requirements one of ordinary skill in the art would be motivated to implement a simpler system of Byrn having a single wheel rate and no priority feature, resulting in a substantially constant time interval, in order to avoid experiencing undesirable jitter as implied by Byrn (e.g., see col. 5, lines 23-27). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to implement the system of Byrn with a single wheel rate and priority for systems not needing to support specific different VC transmission requirements in order to avoid experiencing undesirable jitter as implied by Byrn (e.g., see col. 5, lines 23-27).

Regarding claim 2, Byrn teaches the data stream control memory (e.g., combination of memory 4 and VCA 7, see FIG. 1) storing an increment variable (rate r), and to increment the selected scheduling variables (e.g., increment the position of the wheel Wp,r) the data stream selector (cell scheduling unit CSU 9 in combination with timing wheels) adds the selected scheduling variable (current position of wheel Wp,r) to the increment variable (rate r) (or rather, adds the increment variable to the selected scheduling variable) for the corresponding data stream.

Regarding claim 3, Byrn teaches at least one data memory (e.g., memory 4, see FIG. 1) for storing the data streams which are implicitly retrieved prior to transmission.

Regarding claims 4 and 5, Byrn teaches the data stream control memory storing a pointer variable for each data stream (see col. 3, lines 51-67 regarding Virtual Connection queue pointers), and retrieving the amount of data from the location in the data memory (e.g., memory 4) indicated by the pointer variable of the selected data stream (see col. 5, lines 13-16 and 42-46).

Regarding claims 7-9, Byrn teaches a priority level is implemented wherein all cells in a higher priority are serviced before the other cells (e.g., see col. 5, lines 22-27) such that higher priority level cells act to override the servicing of the other cells, and further provides a selector (e.g., 51, see col. 5, lines 28-59) to indicate a selection of next data to transmit. Further, regarding claim 9, while Byrn may not specifically disclose disabling periodic comparison of the scheduling variables, at the time of the invention it would have been obvious to one of ordinary skill in the art to disable periodic comparison of the scheduling variables in order to conserve processing power when comparing is not necessary.

Regarding claim 10, Byrn teaches means for varying the increment variables (wherein different rates r correspond to difference increment variables, e.g., see col. 4, lines 40-45).

Regarding claim 11, Byrn teaches the ATM scheduler provided on a single integrated circuit (see col. 6, lines 66-67).

Regarding claim 12, while Byrn may not specifically disclose the system further comprises a central processing unit, Examiner takes official notice that it is well known in the art for a system comprising the utilization of a VHDL specification language as in Byrn (e.g., see col. 7, lines 3-6) to be coupled to a central processing unit.

Regarding claim 13, while Byrn may not specifically disclose the CPU is located on the same integrated circuit as the transmission apparatus, it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to shift the location of CPU from any location to that of the integrated circuit comprising the transmission apparatus since it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results. The contention of obvious choice in design can be overcome if Applicant establishes unexpected results. In re Japikse, 86 USPQ 70 (CCPA 1950).

Regarding claims 14 and 15, Byrn teaches a scheduling variable (p) dependent upon QOS (col. 4, lines 53-54) and further teaches values in the system are programmable (e.g., see col. 7, lines 3-6, wherein VHDL specification language is utilized for VLSI design).

Regarding claim 16, while Byrn may not specifically teach an amount of data specifically being 384 bits, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 17 and 18, Byrn teaches an amount of data in the form of an ATM cell (e.g., see Title) which implicitly includes both data and header information.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 703.305.7357. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 703.308.6602. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.4750.

Justin M Philpott

HUY D. VU
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